Outcomes from the Prince George Cardiac and Pulmonary Rehabilitation Program: Filling a service gap while training students in patient care and quality improvement

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Kerrie Roberts, RPT
Candice Herbert, MPT student

In partnership with

Chris Kinch- YMCA
Suzanne Campbell- NH
Disclosure

Robin Roots, RPT
- Instructor, UBC Department of Physical Therapy
- Partner in the development of the PG Cardiac and Pulmonary Rehabilitation Program (PG CPRP) and funding of the PT position
- Provided PT coverage for CPRP and supervised students

Kerrie Roberts, RPT
- Clinical Faculty, UBC Department of PT
- Provided PT coverage for CPRP and supervised students

Candice Herbert, MPT Student (2016-2018)
- Completed clinical placement at CPRP as part of MPT program requirements
- Conducting QI project as part of MPT program requirements
Overview

• Recognized gap in services
• Evidence
• Program development
• Evaluation: Measures
• Outcomes
• Student learning
  • Clinical placement
  • Quality Improvement projects
• Sustainability
The “Gap” in Care

2015: Prince George community members raised concern regarding gaps in services for individuals following a cardiac event and/or with a diagnosis of a chronic pulmonary condition.

COPD and Cardiac Arrest are the number 2 and 4 reasons respectively, for admission to hospital in Northern BC (2014/15).
The “Evidence”

Phase II community-based comprehensive exercise and education-based Cardiac rehabilitation programs:

• reduce hospitalization rates and prevent the reoccurrence of acute events over time (Hearn et al, 2011)

• reduce cardiac mortality after acute cardiac events by 26% (Taylor et al, 2004),

• increase adoption of healthy behaviours, self-management strategies and improve quality of life (Duarte et al, 2011)

• shown to be cost effective as compared to usual care and less expensive than other programs including drug-therapy while demonstrating an increase in quality-adjusted life years gained (Oldridge et al., 2008)

Pulmonary rehabilitation is an effective intervention to:

• improve the health status of patients with COPD

• decreased hospitalization from exacerbations and reduced direct health care costs (Golmohammadi et al, 2004)
The “Gap” in MPT Education

Students in the MPT program must complete clinical education in a variety of areas of practice:

- Chronic Disease Management
- Community Health
Opportunity for partnership

- Tripartite partnership
- Steering Committee:
  - Medical leads, Stakeholders, Patient partners and representative organizations
- Evaluation framework - focused on national Quality Indicators

Pilot the provision of a comprehensive exercise and education program for:
1. Individuals following cardiac events, and
2. Individuals with chronic pulmonary conditions such as chronic obstructive pulmonary disease (COPD)

→ Provide clinical education opportunities for MPT students in Northern BC
About the Program

- Implemented: Cardiac - February 2016; Pulmonary - April 2016
- Modelled on best practice guidelines
- 10 week program, 3 days/wk (Cardiac); 2 days/wk (Pulmonary)
- Supervised / monitored, personalized exercise program
- Group education sessions
- Physiotherapist, Exercise Physiologist & MPT students
  - Initial assessment, exercise prescription
  - Exercise program monitoring
- 10-15 patients per program stream at any given time
  - depending on level of risk (all participants stratified)
- Referral sources – Family Doctor, Specialist, Tertiary centres, NH Community Services, Self Referral (self-referrals would be linked with the Family Physician for support)
<table>
<thead>
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<td># of Referrals received</td>
<td>Reduced emergency department visits due to:</td>
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## Program Stats

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<tr>
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<th>Cardiac Program</th>
<th>Pulmonary Program</th>
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<tbody>
<tr>
<td><strong>Program Duration</strong></td>
<td>Feb. 29, 2016 – Feb. 16, 2018</td>
<td>April 11, 2016 – Feb 16, 2018</td>
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<tr>
<td><strong>Program in operation</strong></td>
<td>2016= 42 weeks; 2017 = 42 weeks</td>
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<tr>
<td><strong>Total Referrals</strong></td>
<td>175</td>
<td>99</td>
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<tr>
<td><strong>Total Participants</strong></td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td><strong>Participants who did not complete all 10 weeks</strong></td>
<td>8</td>
<td>8</td>
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<tr>
<td><strong>Diagnosis of Participants</strong></td>
<td>CABG, Stent, NSTEMI, Heart failure</td>
<td>COPD, Pulmonary Fibrosis, Bronchiectasis</td>
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<tr>
<td><strong>Referral Source</strong></td>
<td>Specialist, Family GP</td>
<td>Specialist, Family GP, Primary IPT</td>
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<td><strong>How did you hear about the program?</strong></td>
<td>Family Physician, Specialist, word of mouth, NORTH Clinic, St. Paul’s, KGH Cardiac Centre, TV/Newspaper</td>
<td>Specialist, Family Physician, YMCA, TV/Newspaper</td>
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# Patient Outcomes / Program Outcomes

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<th>Proposed Outcomes</th>
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<td>Improved exercise and activity tolerance</td>
<td>Average ↑ 0.857 increase in METS</td>
<td>Average change in 6 min walk = 62.1 m</td>
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<td>52% of participants improved &gt; 1 MET</td>
<td>75% of part ↑ &gt;30m; 56% ↑ &gt;50m</td>
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<tr>
<td>Improved Self efficacy</td>
<td>144</td>
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<td>163</td>
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| Improved well-being and decreased anxiety and depression (HADS) | Depression (pre): 5.47  
Anxiety (pre): 5.2 | Depression (post): 4.67  
Anxiety (post): 4.87 | Depression (pre): 5.8  
Anxiety (pre): 7.3 | Depression (post): 5.2  
Anxiety (post): 6.6 |
| Satisfaction- rate your experience overall             | 21% = 8/10  
21.5% = 9/10  
57% = 10/10 |                                                      |
| Would you recommend the program?                       | 17% = Yes  
83% = Most definitely |                                                      |
Testimonial

"I can't begin to express my thanks for the support, encouragement, structure and guidance that the Cardiac Rehab Team has offered. The program has helped to improve not only my stamina and strength but also my confidence.

After a few weeks in the Cardiac Rehab Programme, I [went for a follow up medical appointment]. The cardiac nurse noted it was "a significant improvement" and the doctor was pleased to see the results.

Thank you, from the bottom of my complicated, not-entirely-normal-but-slightly-better-trained heart, thank you. I appreciate the time and energy you have invested into getting the programme up and running. Perhaps, with continued training, I will be up and running at some point too.”
Testimonials

• "I believe the program is excellent, it has gone a long way towards increasing my confidence and allows me to set goals for myself that are attainable”

• “Thank you for your wonderful program, for the kind and personal attention, for sharing your expertise, for the effort each of you has put into the instructional portions of the program and for pushing me to reach new heights in cardiac recovery”.

• “I can tell you I feel much more confident in my ability to carry on with activities and a normal lifestyle that, for some time, I felt was unattainable.”

• "I am so positive about the program I have applied for the volunteer position of cardiac fitness ambassador and hope to be a successful candidate. I can't say enough good things about the program. Well done!"

Post program follow-up comments and Directions for the future:

• "I've just not been able to find the motivation like it was at the YMCA. My family has tried to encourage me, with no luck."
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System outcomes: comparison of pre & post acute care utilization

Based on data from EDIS and DAD Jan 2015 – Sept 2017: 48 Cardiac rehab participants & 39 Pulmonary rehab participants
Cardiac Rehabilitation – system outcomes

Inpatient Encounters (Admissions) – 75% reduction

Inpatient Days – 85% reduction in bed days, 41% reduction in LOS

ED Visits – 25% reduction

→ Process changes underway to have all cardiac patients triaged appropriately to Clinic NORTH and/or PG CPRP
Pulmonary Rehabilitation- system outcomes

Inpatient Encounters (Admissions) – 82% reduction

Inpatient Days – 84% reduction in bed days, 41% reduction in LOS

ED Visits – 68% reduction

→ Process changes: Referral to Pulmonary Rehab is now part of the COPD Order Set
Cost - Benefit Comparison for Pulmonary Rehab - unofficial

• Avg. cost per patient for hospital care in BC for COPD = $6,639
  • Data from January 2017 – August 2017

• PRE- 28 encounters x $6,639 = $185,892
• POST- 5 encounters x $6,639 = $33,195

• Total Savings in COPD encounters alone for 8 months = $152,697

• Northern Health cost x 8 months Pulmonary Rehab Program = $15,000
MPT Clinical education placement

• 21 MPT students completed their clinical education with the PG CPRP

Participant feedback regarding the student involvement in the program

• "They were open to discussion and trying new things so I felt listened to and acknowledged. Their energy and positivity rubbed off on me - yay!“

• " Remember the students? They were great. Strong, informed youth are the future of this world. Each different, all amazing!".

Student feedback regarding the participants in the program

• “It was amazing to watch the attitude change and gains in confidence over the 5 weeks, it was like night and day for some people”.
MPT Student QI projects

• A team based approach to Quality Improvement that involves mentors, students, and participants.
• The chance to implement change where gaps or issues have been identified.
• Use a PDSA cycle to examine small changes and measure their success. Then refine changes based on what was learned.
Question:
Based on self-report measures, what are barriers and facilitators to participants’ continued physical activity 3-6 months following program completion, and how do participants perceive the program has impacted their continued physical activity levels to this time point?

Results:
Participants meeting the recommended exercise volume of 150 mins/week:
- 54% of all participants

Common barriers to physical activity:
- Weather, ill-health/fatigue, pulmonary exacerbation, and lack of motivation
QI 2018

• Care gap in tools and resources provided to participants to assist in maintaining levels of physical activity post-discharge

• Determine if implementing a tool designed to address the previously recognized barriers to exercise increases the percentage of participants achieving recommended activity levels post-discharge.
QI 2018 - Addressing Patient Barriers

My Physical Activity Handbook

Are you having a difficult time getting motivated to complete your exercises?

SMART goals is a format of setting personalized achievable goals in a way that will optimize success and can be used for exercise goals. The acronym SMART stands for the following:

- SPECIFIC: Your goals must be specific and clear.
- MEASURABLE: Set a clear and specific target goal.
- ATTAINABLE: The goal should be attainable and should be within your reach.
- RELEVANT: Your goal should be relevant to your overall goals.
- TIME-BASED: Set a deadline for achieving your goals.

An example of a SMART goal is as follows:

Be able to walk 15 minutes without rest, 4 times a week, outside or in a fitness facility, at a 4/10 on the RPE scale within 4 weeks.

Your turn! Grab a pen and paper, and write down your own SMART goal!
Success despite the challenges – what is needed for sustainability?

**Successes**

- Met or exceeded outcomes at Patient, Program and System level
- Provided valuable training opportunities for future health care professionals
  - recruitment and retention

**Challenges**

- PT position remains vacant (x 26 months)
- PT support provided by UBC Faculty, which resulted in:
  - Reduced program volume (operating at only 60% targeted patient volume)
  - As of December 2017, no further patients were admitted to the programs
- Growing demand given rates of COPD and Cardiac disease in the North
Thank you...

Questions?
References


